Received 8-13-02

AMENDED AND NEW CLAIMS

Serial No.: 09/640,952
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C4

1. (Amended) A method for detecting the presence of metastatic cells in a cell population comprising the steps of

lysing at least a portion of the cell population,

incubating the lysed cells with a monoclonal antibody that specifically binds EphA2 to allow antibody binding to EphA2, and

detecting antibody-EphA2 binding.

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21. (Amended) A method for detecting the presence of metastatic cells in a cell population comprising the steps of

incubating the cells with a reagent capable of specific binding to a nucleic acid coding for the EphA2 protein, and

detecting reagent-compound binding.

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23. (Amended) The method of claim 21 wherein the nucleic acid is DNA or RNA.

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28. (Amended) The method of claim 1 wherein antibody-EphA2 binding is indicative of the presence of metastatic cells in the cell population.

30. (Amended) The method of claim 1 wherein the antibody binds to an intracellular epitope of EphA2.

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31. (Amended) The method of claim 1 wherein the antibody is produced by hybridoma cell line D7.

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33. (Amended) The method of claim 5 wherein the antibody comprises at least one of a fluorescent label, a chemiluminescent label, a bioluminescent label, an enzymatic label, a

Received 8-13-02

C9 chromogenic label and a radiolabel, wherein detecting reagent-EphA2 binding comprises detecting at least one detectable label.

38. (Amended) The method of claim 28 wherein the cell population comprises metastatic cancer cells.

39. (Amended) The method of claim 38 wherein the metastatic cancer cells comprise cells selected from the group consisting of breast cancer cells, kidney cancer cells, prostate cancer cells, lung cancer cells, and colon cancer cells.

C10

40. (Amended) The method of claim 3 wherein the metastatic cancer cells comprise epithelial cancer cells.

45. (Amended) The method of claim 28 wherein detecting antibody-EphA2 binding comprises utilizing a diagnostic method selected from the group consisting of an ELISA assay, a Western blot, and flow cytometry.

46. (Amended) The method of claim 28 wherein detecting antibody-EphA2 binding comprises utilizing a Western blot; the method further comprising Western blotting with a second antibody having phosphotyrosine specificity.

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47. (Amended) A method for detecting the presence of metastatic cells in a cell population comprising:

incubating at least a portion of the cell population with a monoclonal antibody that specifically binds EphA2 to allow binding of the antibody to EphA2; and

detecting antibody-EphA2 binding, wherein antibody-EphA2 binding is indicative of the presence of metastatic cells in the cell population.

Received 8-13-02

49. (Amended) The method of claim 47 wherein the antibody binds to an intracellular epitope of EphA2.

50. (Amended) The method of claim 47 wherein the antibody is produced by hybridoma cell line D7.

C12

51. (Amended) The method of claim 47 wherein the antibody binds to an extracellular epitope of EphA2.

52. (Amended) The method of claim of claim 47 wherein antibody-EphA2 binding yields a bound complex comprising a whole cell.

54. (Amended) The method of claim 47 wherein the antibody is produced by hybridoma cell line B2D6.

55. (Amended) The method of claim 47 wherein the bound antibody comprises a detectable label; and wherein detecting antibody-EphA2 binding comprises detecting the label.

C13

56. (Amended) The method of claim 47 wherein the bound antibody comprises at least one of a fluorescent label, a chemiluminescent label, a bioluminescent label, an enzymatic label, a chromogenic label and a radiolabel; and wherein detecting antibody-EphA2 binding comprises detecting at least one detectable label.

61. (Amended) The method of claim 47 wherein the cell population comprises metastatic cancer cells.

C14

62. (Amended) The method of claim 61 wherein the metastatic cells comprise cells selected from the group consisting of breast cancer cells, kidney cancer cells, prostate cancer cells, lung

cancer cells, and colon cancer cells.

C14 63. (Amended) The method of claim 47 wherein the metastatic cells comprise epithelial cancer cells.

72. (Amended) A method for detecting the presence of cancer cells in a selected cell population comprising:

assaying at least a portion of the sclected cell population for at least one of

a change in EphA2 intracellular localization pattern; and

a change in EphA2 phosphorylation content

C15 as compared to thc intracellular localization pattern and phosphorylation content in an analogous normal cell population;

whcrcin the change is indicative of the presence of a cancer cell in the selected cell population.

73. (Amended) The method of claim 72 wherein a change in intracellular localization pattern or phosphorylation content is indicative of the presence of metastatic cancer cells in thc cell population.

78. (Amended) A method for determining the disease stage in a cell population comprising cancer cells, the method comprising:

C16 assaying at least a portion of the cell population for at least one of

EphA2 intracellular localization; and

EphA2 phosphorylation content; and

determining the disease stage of the cancer cells.

Rule 1.126 C17 82. (New) A method for detecting the presence of cancer cells in a selected cell population comprising:

assaying at least a portion of the selected cell population for at least one of

a change in EphA2 expression level;

a change in EphA2 intracellular localization pattern; and

a change in EphA2 phosphorylation content

as compared to the EphA2 expression level, intracellular localization pattern and phosphorylation content in an analogous normal cell population;

wherein the assaying the cell population comprises incubating at least a portion of the selected cell population with a monoclonal antibody, and wherein the change is indicative of the presence of a cancer cell in the selected cell population.

83. (New) The method of claim 82 wherein a change in EphA2 expression level is indicative of the presence of nonmetastatic cancer cells in the cell population.